

单元测验查看

第四章 字符串测验

1 若字符串s="software"，则其子串个数为：

If the string s = "software", then the number of its sub-string is:

( 填空2 分)

数值精确：37

解析： 解释：空串和自身各1个，长为1的8个，长为2的7个，...，长为7的2个。2+8+7+6+5+4+3+2=37 Explanation: the number of empty string and itself is both one and the ones with length of 2 is 7 , ....., length of 7 is 2. 2 + 8 + 7 + 6 + 5 + 4 + 3 + 2 = 37

2

若字符串s="algorithm"，则其子串个数为：

If the string s = "algorithm", then the number of its sub-string is:

( 填空2 分)

数值精确：46

解析： 解释：空串和自身各1个，长为1的9个，长为2的8个，...，长为8的2个。2+9+8+7+6+5+4+3+2=46 Explanation: the number of empty string and itself is both one and the ones with length of 2 is 8 , ....., length of 8 is 2. 2 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 = 46

3 设有字符串变量String A =""，B="MULE"，C="OLD"，D="MY"；请计算下列表达式（3个答案本身不要出现空格，答案之间用空格分开）

Assume that there is a string variable String A = "", B = "MULE", C = "OLD", D = "MY"; Please calculate the following expression:

(1) D+C+B

(2) B.substr(3, 2)

(3) A.strlength()

( 填空2 分)

文字精确：MYOLDMULE E 0

解析： 1.字符串连接 2.从第3位开始取2个字符，但是'MULE'第三位及之后只有一位字符，所以答案为E 3. A是空串

4 设有两个串p和q，其中q是p的子串，求q在p中首次出现的位置的算法称为( )（单选）

There are two strings p q, q is p's substring. The algorithm to search the first time q appeared in p is called ( )（There is only one correct answer）

( 单选2 分)

☒ A. 匹配 Matching(正确答案)

解析： 匹配：是求子串在父串中位置的运算  
Matching is the algorithm to seek the substring's location in the original string.

☐ B. 求子串 Seeking substring(错误答案)

解析： 求子串：求子串是给定首字符在原字符串中位置和子串长度，输出子串的运算  
Seeking substring is operation that outputs substring, given that first character's location of substring's characters in string and the substring's length

☐ C. 联接 Concatenation(错误答案)

解析： 联接：是把两个字符串连接到一起输出新字符串的运算  
Concatenation is the algorithm to connect the two strings together to output a new string.

☐ D. 求串长 Seeking length(错误答案)

解析： 求串长：求字符串的长度 Seeking string's length

5 下列说法正确的是：（单选）

Which of the following statements is correct?（There is only one correct answer）

( 单选2 分)

☒ A. 空串是任意字符串的子串 Empty string is a substring of arbitrary string.(正确答案)

☐ B. 空串就是空白串"Empty string" is blank string.(错误答案)

解析： 空串就是长度为零的字符串，不包含任何字符串；空白串是指包含一个或多个空白字符的串。  
Empty string is zero-length string that does not contain any string; Blank string is a string that contains one or more blank characters.



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- ☐

C. 串只可以采用顺序存储,不可以采用链式存储 String only can be stored in sequential method and cannot be stored in linked method.(错误答案)

解析: 串既可以采用顺序存储,也可以采用链式存储 String not only can be stored in sequential method ,but also can be stored in linked method.
- ☐

D. 在C++标准中, char S[M]最多能表示长度为M的字符串 In C ++ standards, char S[M] can represent up to a string of length M.(错误答案)

解析: 最多能表示M-1长度的字符串, 字符串最后一位必须是'0'.  
It can represent up to the length of M-1. The last one must be reserved for the character '0'.

6

一个文本串可用事先给定的字母映射表进行加密。例如, 设字母映射表为:

A text string can be encrypted by the given letters mapping table. For example, the letters mapping table is:

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
n	g	z	q	t	c	o	b	m	u	h	e	l	k	p	d	a	w	x	f	y	i	v	r	s	j

比如字符串"encrypt"被加密为"tkzwsdf".则字符串"algorithm", 被加密为\_\_\_\_\_ (Hint: 1. 答案不需要加引号 2. 系统基于字符匹配来判定答案, 所以您的答案中不要出现空格)。

As the string "encrypt" is encrypted as "tkzwsdf", then the "algorithm" is encrypted as \_\_\_\_\_ (Hint: 1. please don't include any quotes in your answer 2. This problem is judged by string matching, Please make sure your answer don't contain any blanks.).

( 填空2 分)

文字精确: neopwmfbl

解析: 解释: 一一对应即可 Explanation: Correspondence to the example.

7 S="S1S2...Sn"是一个长为n的字符串, 存放在一个数组中, 程序员将S改造之后输出。

S = "S1S2 ... Sn" is a string of length n, and stored in an array, output S after its programmable transformation.

- 1.将S的所有第偶数个字符按照其原来的下标从大到小的次序放在S的后半部分; 1.All the even-numbered characters of S should be placed in accordance with their subscript descending order in the second half of S;
- 2.将S的所有第奇数个字符按照其原来的下标从小到大的次序放在S的前半部分; 2.All the odd-numbered characters of S should be placed in accordance with their subscript ascending order in the first half of S.

例如: S='ABCDEFGHIIJKL', 则改造后的S为'ACEGIKLJHFDB'. 则 S='algorithm', 改造后为\_\_\_\_\_ (Hint: 1. 答案不需要加引号 2. 系统基于字符匹配来判定答案, 所以您的答案中不要出现空格)。

For example: S = 'ABCDEFGHIIJKL', then after the transformation S is 'ACEGIKLJHFDB'. If S = 'algorithm', then after the transformation S is \_\_\_\_\_ (Hint:1. please don't include any quotes in your answer.

2.This problem is judged by string matching, Please make sure your answer don't contain any blanks ).

( 填空2 分)

文字精确: agrtmhiol

解析: 解释: 前半部分为, algorithm奇数的字符, 即agrtm; 后半部分为Algorithm偶数字符下标从大到小次序, 即hiol, 故结果是agrtmhiol. The first half was algorithm's odd characters, name part is Algorithm's even characters in their descending subscript order, namely 'hiol', so the result is agrtmhiol.

8 若串S1='ABCDEFG', S2='9898', S3='###', S4='012345',执行

concat(replace(S1,substr(S1,length(S2),length(S3)),S3),substr(S4,index(S2,'8'),length(S2)))

注意: substr(S,i,j)是对字符串S的下标为i开始取j个字符, 这里的下标是从0开始的(单选)

If the string S1 = 'ABCDEFG', S2 = '9898', S3 = '###', S4 = '012345', execute concat (replace (S1, substr (S1, length (S2), length (S3)), S3), substr (S4, index (S2, '8'), length (S2))) Note substr (S, i, j) is the operation to take string S's j characters from subscript i. Subscript here is starting from 0. (There is only one correct answer)

( 单选2 分)

- ☐

A. ABCD###1234(正确答案)

解析: substr(S1,length(S2),length(S3))即substr(S1,4,3)), 从下标4开始取s1三个字符, 即EFG, replace(S1,substr(S1,length(S2),length(S3)),S3)即replace (S1, 'EFG', '###')而,substr(S4,index(S2,'8'),length(S2))即,substr(S4,1,4) (其中index(S2,'8')指的是找s2中第一个'8'的下标), 故为'1234'. 故最后结果为ABCD###1234  
substr(S1,length(S2),length(S3))namely substr(S1,4,3)), from the subscript 4 to take three character of S1,namely EFG,  
replace(S1,substr(S1,length(S2),length(S3)),S3)namely replace (S1, 'EFG', '###'), the result is'ABCD###', and substr(S4,index(S2,'8'),length(S2))namely substr(S4,1,4) (Note index(S2,'8') means finding the first 8's subscript in S2), so the result is'1234'. The final result is ABCD###1234.

- ☐ B. ABC###G0123(错误答案)
- ☐ C. ABCD###2345(错误答案)
- ☐ D. ABC###G2345(错误答案)

9 下列程序判断字符串s 是否对称，对称则返回1，否则返回0；如 f("abba")返回1，f("abab")返回0；  
Use the following procedures to determine whether the string s is symmetry, symmetry returns 1, otherwise return 0; such as f ("abab") returns 0;

```
int f(char s[])
{
    int i=0,j=0;
    while (s[j])
        (1)++;
    for(j--; i < j && s[i]==s[j]; i++,j--);
    return((2)>=(3));
}
```

注：(1)和(2)和(3)三个答案之间用空格分隔，每个答案是一个字符,不要加空格  
(填空2 分)

文字精确: j j j  
解析: 解释: while (s[j])是为了将j移动到字符串末尾，故答案1是j,而 for(j--; i < j && s[i]==s[j]; i++,j--);的意义是，j光标指着字符串尾，i光标指着字符串头，从两边往中间开始比较，直到发现有不  
出循环，如果全部对称，则当i>=j时就退出循环，最后通过比较是否i>=j来判断是否有不对称的字符导致中途退出循环，答案2和3为i和j。 Explanation: while (s [j]) is in order to move j to the end  
answer 1 is j, and for (j--; i = j you exit the loop, and finally by comparing whether i > = j to determine whether there is an asymmetric leading character halfway to exit the loop, the answer is 2 ar

10 在字符{A, C, G, T}组成的DNA序列中，A和T、C和G是互补对。判断一个DNA序列中是否存在互补回文串  
(例如，ATCATGAT的补串是TAGTACTA，与原串形成互补回文串)。下面DNA序列中存在互补回文串的是：(多选)  
In the DNA sequences consisting of character {A, C, G, T}, A and T, C and G are complementary pairs.  
Judging whether there is a complementary palindrome sequence in a DNA sequence (e.g., ATCATGAT's  
complement strings is TAGTACTA, it is complementary palindrome sequence with the original sequence).  
Which of the following DNA sequences have complementary palindrome string? (There are more than one  
answers.)  
(多选3 分)

- ☐ A. CTGATCAG(正确答案)
- ☐ B. AATTAATT(正确答案)
- ☐ C. GTACGTAC(正确答案)
- ☐ D. AGCTAGCT(正确答案)
- ☐ E. TGCAACGT(错误答案)
- ☐ F. CATGGTAC(错误答案)

解析: C.TGCAACGT : 互补串为ACGTTGCA，不是原串回文。  
The complementary string is ACGTTGCA, not palindromic to the original.

解析: D.CATGGTAC : 互补串为GTACCATG，不是原串回文。  
The complementary string is GTACCATG, not palindromic to the original.

11 下面关于串的的叙述中，哪一个是不正确的:(单选)  
Which of the following descriptions about string is not correct? (There is only one correct answer)  
(单选2 分)

- ☐ A. 空串是由空格构成的串 Empty string is a string consisting of spaces.(正确答案)
- ☐ B. 串是字符的有限序列 String is a finite sequence of characters.(错误答案)
- ☐ C. 模式匹配是串的一种重要运算 Pattern matching is an important operation.(错误答案)
- ☐ D. 串是一种数据对象和操作都特殊的线性表 String is a linear list whose data objects and operations both special(错误答案)

